

RARE *SARRACENIA* POACHING AND THE ICPS

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*Sarracenia oreophila* is a rare pitcher plant that occurs in only three states: Alabama, North Carolina, and Georgia. It used to occur in Tennessee, but is now thought to be extirpated there. The species is endangered by habitat degradation and poaching. A number of private, state, and federal agencies are involved in overseeing the protection and stewardship of the remaining *S. oreophila* sites. With so many participants working towards the same goals, it is valuable for them to meet from time to time and discuss their techniques and progress. Staff of the Alabama Natural Heritage Program<sup>SM</sup> proposed such a meeting, and the ICPS was asked to fund it. As a board member of the ICPS I seized the opportunity and privilege to help. The ICPS fundraising drive was a remarkable success and we were able to fully fund the event (Meyers-Rice, 2000). Following the wishes from the donors, the unspent money is being donated in part to The Nature Conservancy to support further rare *Sarracenia* conservation, and the balance will be used by the ICPS for conservation projects.

In this article I will report on the meeting and what I learned about the ICPS's possible roles in future rare *Sarracenia* conservation projects. Notice I do not limit the discussion to *Sarracenia oreophila*—it would be artificial to talk about the conservation of *S. oreophila* without mentioning *S. alabamensis*, *S. jonesii*, and *S. purpurea* subsp. *venosa* var. *montana*. (This last taxon was described by Schnell & Determann (1997).) These plants are all rare, and the issues in this article are relevant to all of them.

Notes on the Meeting

The meeting was attended by staff from the US Fish and Wildlife Service; personnel from two Alabama state preserves; stewards from The Nature Conservancy programs in Alabama, North Carolina, and Georgia as well as the Alabama Natural Heritage Program<sup>SM</sup>; experts on biohydrology and invasive species from The Nature Conservancy; conservation staff from Atlanta Botanical Gardens; and finally (but certainly not least) several private individuals who have wild, native populations of *Sarracenia oreophila* on their property. During the two-day meeting, participants discussed their sites, shared stewardship suggestions, and even visited a few *Sarracenia* sites. My impression was that the goal of the meeting—to share information—was a success. In fact, despite the fact that all the attendees were extremely busy people, they were enthusiastic about meeting again in about two years. This is a powerful endorsement from people who would rather be working in the field than attending meetings!

I learned a few lessons of my own, but not pleasant ones. The first came long before the meeting date, when I was still raising money for it. At this time, I was surprised to hear that some of the proposed attendees were so nervous about the ICPS having anything to do with *Sarracenia* conservation that they were considering not participating in a meeting the ICPS funded. Why could this be? We wanted to help! (Fortunately, these cautious people did, ultimately, participate in the meeting.) During the meeting, I learned why they were so nervous about ICPS involvement. Nearly every attendee related horror stories about carnivorous plant enthusiasts removing plants from monitored and protected sites and generally flouting conservation laws

and ethics.

Because of widespread and persistent poaching problems, the managers attending this meeting were certainly nervous about cooperating with carnivorous plant enthusiasts. As a group, we enthusiasts have justly earned ourselves a name that will be difficult to rehabilitate. The distrust towards carnivorous plant growers (and the ICPS) is so bad that a number of times during the meeting I felt that being associated with the ICPS could be a liability to my career in conservation science!

### Human Stresses on Rare *Sarracenia*

By far, the greatest threat to most *Sarracenia* species in the United States is habitat destruction. More than 90% of the *Sarracenia* habitat in the USA has been drained and converted into pine plantations, agricultural fields, ponds and lakes, golf courses, or human habitations. This is done because it is not only legal to destroy *Sarracenia* habitat—it is usually profitable, too. Even the most ambitious conservation programs could be characterized as strategies designed to save the largest possible number of remnant wetland habitats. It is as if a pie had been so voraciously cut apart and consumed that only the crumbs remained to remind us of what was once present.

In contrast with the other pitcher plant species, *Sarracenia alabamensis*, *S. jonesii*, and *S. oreophila* are in a very different situation. These species are protected by the Endangered Species Act of 1973, and are also listed on Appendix I of CITES (Convention for International Trade of Endangered Species), i.e. the most protected listing. As such, state, federal, and international laws are in place to protect the plants. This means that every population on public land is protected from habitat destruction. Furthermore, the majority of the sites on private land are protected from destruction by voluntary agreement with the landowners.

The single greatest threat to these three rare pitcher plant species is poaching!

At first, I could not believe that poaching activity was significant. As an editor of Carnivorous Plant Newsletter, I have many sources of information regarding what is happening in the carnivorous plant community—I keep an eye on nursery activity and internet sales; to see rare pitcher plants being sold is uncommon, so I did not think people were poaching them. But again and again during the *S. oreophila* meeting, I listened as managers recounted tale after tale of trespassing and theft.

For example, we all know of a preserve that contains a population of unique, anthocyanin-free *Sarracenia jonesii*. Unfortunately, this site is too well known—poachers have been so ravenous and persistent that the anthocyanin-free form of *Sarracenia jonesii* has been completely poached from the preserve. It is now extinct in the wild, because of the activities of members in our hobbyist community. Furthermore, even the normal, red-flowered plants are being poached—for three consecutive years, every seed pod has been stolen from the site, so no seedling reproduction is possible.

In another case involving *Sarracenia jonesii*, a new site for this plant was recently discovered (this brought the total number of sites to 11). It was a good site with several hundred plants. Somehow news of this discovery was leaked. Within one year, every plant had been removed. Nothing remains but shovel holes.

Even as I prepared the final draft of this paper for Carnivorous Plant Newsletter, I received word of yet another pitcher plant site that had been heavily poached. In spite of being on gated, guarded, private land, this site has been poached down to nine remaining plants.

While not every person had such dramatic stories to tell, they all had some poaching tales. At every site we discussed, whether it was for *S. oreophila*, *S. alabamensis*, or *S. jonesii*, plants were being stolen. Sometimes only a few plants or seedpods were stolen; sometimes whole clumps were dug out. Sometimes entire populations were removed. Poachers came on foot, by car, by truck. Some had lookouts; some came alone. Some poachers were caught; others got away.

I cannot exaggerate how disheartening it was to hear these stories and to learn about how extensive poaching is. Problem people were discussed; names were named. Some of these names were familiar to me.

### What is Being Done to Help *Sarracenia*

Stewardship of *Sarracenia* sites is not easy. First, it is important that the hydrology (i.e. water quality and flow to the site) is intact. Pollutants such as pesticides, herbicides, and fertilizers can leach through the groundwater into preserves. Such compounds flowing into bogs can kill the *Sphagnum* layer, which severely disrupts the structure of the bog habitat. Even airborne pollutants can increase the nutrient levels at otherwise unthreatened sites. Stimulated into growth by these nutrients, noncarnivorous plants rapidly displace the carnivores. (This effect is particularly relevant for *Sarracenia jonesii* and *S. purpurea* subsp. *venosa* var. *montana*.) Second, prescribed fire is necessary to maintain the open and sunny structure of *Sarracenia alabamensis* and *Sarracenia oreophila* sites. Shrubs and trees can crowd out these species if wildfires are excluded for just several years. A prescribed fire program requires careful planning, timing, and highly trained personnel. If fire is an untenable solution, cutting down pioneering trees and judiciously applying herbicides may be an acceptable alternative. *Acer rubrum* and *Liquidambar styraciflua* are particularly invasive native trees. Non-native invaders, such as *Microstegium vimineum* (Japanese stilt grass) and *Ligustrum sinense* (privet), are additional threats.

Apart from the sweaty labor are a number of thorny philosophical problems. At what point does maintaining a *Sarracenia* bog translate to gardening? Is it appropriate to spend such great efforts to try and maintain “postage-stamp” sized preserves when wildland conservation in the USA is focusing more on large, landscape scale efforts? Since so many *Sarracenia* bogs have been destroyed, are the few remaining sites so separated from each other that pollination can no longer occur in a natural way, i.e. has range fragmentation already made the rare *Sarracenia* functionally extinct from an evolutionary perspective? These complex issues are more than just sources of armchair speculation—they guide stewardship decisions!

Reintroduction is also an extremely complex issue. As an important member of the conservation team, Atlanta Botanical Gardens has collected seed and is growing plants from nearly all the rare *Sarracenia* sites. If nothing else, this is an important safeguard to protect a site from complete genetic extinction if something catastrophic were to happen to it. But should plants germinated and grown at Atlanta Botanical Gardens be replanted to the wild? Of course, this would be done carefully, i.e. only seedlings originating from a specific site could be reintroduced to that specific site. But even so, would this be introducing genetic drift to the population because plants best suited for surviving for a few years in cultivation were being planted back to the wild? Equally complex is the notion of establishing new populations at either new sites, or at sites that historically had rare pitcher plants. What genetic stock should be used at the new sites? Could (or should) the new sites be allowed to cross pollinate with extant sites?

These complex questions do not have simple answers. Great damage has been done to *Sarracenia* populations, and it is important we do not exacerbate the problem with ill-constructed triage.

Finally, survey work is an important aspect of conservation. We believe that surveys have detected most of the sites where the rare *Sarracenia* species still occur, although new ones are occasionally discovered. (There are approximately 13, 10, and 23 known sites for *S. alabamensis*, *S. jonesii*, and *S. oreophila*, respectively.) All these locations<sup>1</sup> are under some form of management. (Certainly, all the sites on public land or land owned by The Nature Conservancy is being managed.) For some sites, this may

<sup>1</sup>Monitoring and/or stewardship agreements are not in place for a few fiercely guarded privately owned sites, however.

simply mean the populations are being monitored. At other sites, various forms of habitat manipulation are being done. There is evidence that a few more sites may exist, but they have not yet been found. If any new sites are found, they are likely to be small, with only a few dozen plants. However, when an overgrown site is cleared, amazing things can happen. It appears that after being overgrown by trees, *S. oreophila* may persist in a depauperate state for decades, awaiting a forest fire or some other natural disturbance to open the canopy (C. Emanuel, private communication).

### How the ICPS Can Harm or Help Rare *Sarracenia*

In order for the ICPS to continue to help in *Sarracenia* conservation, trust must be established with the various management organizations already working at *Sarracenia* sites. There have been so many poaching abuses by collectors that anyone interested in visiting *Sarracenia* sites—hobbyists, scientists, or earnest ICPS members—are immediately distrusted. While the ICPS may want to help, it must demonstrate that its help can be trusted!

Since the ICPS is not financially able to purchase *Sarracenia* property, its help must be in other ways. I see the ICPS could help most in three main fields: Education, funding projects, and refining ICPS policy.

**Education:** Obviously, the ICPS is in an ideal position to communicate with carnivorous plant hobbyists and scientists around the world. By communicating with its membership through Carnivorous Plant Newsletter, the ICPS web site, and the carnivorous plant listserv, a very large portion of those people interested in carnivorous plants can be educated about conservation issues. We must ensure that growers are aware that these rare *Sarracenia* sites are protected, both in a conservation sense and in a legal one. From the conservation standpoint, all the sites are being monitored and stewarded<sup>1</sup>. Regarding the law, explorers of carnivorous plant sites should know that they cannot assume it is legal for them to wander through rare pitcher plant sites without first obtaining permission from the land owners! Every square cm of the USA is owned by some person or is overseen by some governmental agency. Visitation without first contacting landowners may result in trespassing and personal theft charges. (And beware, many landowners have firearms, and encounters can become very frightening, very quickly.) Anyone caught collecting rare *Sarracenia* on public lands can be subject to a combination of state and federal charges, including the violation of the federal Endangered Species Act of 1973. (This applies to removal of plants, seedlings, and seed.)

**Fundraising:** The stewardship programs at some carnivorous plant sites are not as rigorous as they could be. This reflects the reality of funding. If you are interested in helping rare *Sarracenia* conservation, contact the ICPS and make a donation to our conservation program.

**Refining ICPS policy:** The ICPS is planning to work with officials from the US Fish & Wildlife Service to determine how we can legally distribute seed or perhaps even plants of rare *Sarracenia*. Our hope is to help destroy the economic incentive for poaching plants by making rare *Sarracenia* easily available in an inexpensive way. We are trying to devise ways of labeling plants with location codes (i.e. AL-OR-05 for site #05 of *S. oreophila* in Alabama). Such codes would satisfy the interests of collectors who want to have plants from as many places as possible, but would not reveal geographical data to potential poachers. Until we can devise an approach that is satisfactory to the ICPS and the US Fish & Wildlife Service, the ICPS has stopped distributing rare *Sarracenia* seed through its seed bank. Furthermore, the ICPS has informed stewards of rare carnivorous plant sites that any visitors who claim to represent the ICPS in any way are not, in fact, empowered to do so. (There are some poachers who

<sup>1</sup>Monitoring and/or stewardship agreements are not in place for a few fiercely guarded privately owned sites, however.

claim to be visiting sites in the name of the ICPS.) Finally, it has become editorial policy of the ICPS to not include detailed geographic information as to locations of rare carnivorous plants—this applies to all ICPS publications, including the web site. This is unfortunate, since many of us like to visit carnivorous plants in the field, but we must remember that the welfare and survival of the plants override our own interests in seeing them.

### How You Can Harm or Help Rare *Sarracenia*

You, as a member of the ICPS, can certainly help in the protection of rare *Sarracenia*. Obviously, never trespass, never field collect, never buy plants from poachers. Instead, support conservation programs of the ICPS and other organizations. Do not sell rare *Sarracenia* (i.e. *S. alabamensis*, *S. jonesii*, *S. oreophila*) unless you have appropriate permits (i.e. state permits as well as federal permits from the US Fish & Wildlife Service for sales within the USA, and CITES permits for international sales; if you do not live within the USA, your country may have other regulations by which you must abide). If you post information about your sales on the internet, be fastidious in following all laws—fairly or not, when individuals advertise their sales of rare *Sarracenia* on the carnivorous plant listserve, government officials equate this with the ICPS being involved. Be responsible in your horticultural practices.

If you happen to visit any suitable habitat, whether there are carnivorous plants already living there or not, never introduce or reintroduce seeds or plants you produced in cultivation. Greenhouse grown plants may be carrying diseases or non-native weeds with them; “pure” seeds may be hybrids created by a wayward pollinator acting without your knowledge. Your unmonitored additions would also confuse the scientists and landowners working to improve the wild populations of plants.

Finally, I know that many members of the ICPS are indefatigable field explorers, and have singlemindedly scoured the southeastern USA with the goal of finding as many carnivorous plant sites as possible. It is quite possible that such field researchers have found rare pitcher plant sites that have eluded the US Fish & Wildlife Service and state Natural Heritage Programs. Such sites, if they exist, would be greatly at risk since they would be unprotected by the appropriate state and federal agencies. If you know of sites that house *Sarracenia alabamensis*, *S. jonesii*, or *S. oreophila*, you should contact the US Fish & Wildlife Service or the appropriate state’s Natural Heritage Program and provide as much data as you possibly can. I can provide you with appropriate contact information. These programs will only share location information with appropriate conservation officials, so do not contact them because you want to learn of sites to visit! (It has unfortunately been discovered, in lessons very damaging to *Sarracenia* populations, that this kind of information must be safe-guarded.)

### Concluding Thoughts

The greatest danger to these plants is us—the very enthusiasts who should be the most interested in their well-being. Past violations by members of the carnivorous plant enthusiast community have earned us distrust, and have alienated those stewards and policy makers who should be our allies. We must proceed more carefully in the future if we wish to have any say in the protection of these marvelous plants.

I am very happy that the ICPS was able to support an event that was useful to the long-term survival of *S. oreophila*. I have been working with the other board members of the ICPS on conservation initiatives, and I think that we can look forward to many opportunities to help conservation efforts, opportunities which we have hitherto passed by. You will be hearing about these initiatives in the future, both in Carnivorous Plant Newsletter and on the ICPS web site. Members of the ICPS will have an opportunity to pay something back to the plants that have enriched our lives.



Figure 1: Several meeting attendees review the management actions at a *Sarracenia oreophila* seepage bog.



Figure 2: Discussing the effects of woody plant removal at a *Sarracenia oreophila* site.





Figure 3: Small *Sarracenia oreophila* plants persisting despite frequent poaching at a flatwood bog.



Figure 4: *Sarracenia oreophila* plants, mostly dormant, in streamside habitat.

## Acknowledgments

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## INTERNATIONAL CARNIVOROUS PLANT SOCIETY SEED BANK

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<i>Darlingtonia californica</i>	<i>D. rotundifolia</i> —Rhode Island, USA
<i>D. californica</i> —Tillamook Co., Oregon, USA	<i>D. stenopetala</i>
<i>Dionaea muscipula</i>	<i>Nepenthes bicalcarata</i>
<i>Drosera anglica</i> —Oregon, USA	<i>N. gymnamphora</i> × ?
<i>D. auriculata</i>	<i>N. ventricosa</i> × ?
<i>D. burmannii</i>	<i>Sarracenia alata</i> —Georgia, USA
<i>D. capensis</i> —narrow leaf	<i>S. flava</i> —Georgia, USA
<i>D. capensis</i> —purple flower, narrow leaf	<i>S. flava</i> —North Carolina, USA
<i>D. capensis</i> —white flower	<i>S. leucophylla</i> —Georgia, USA
<i>D. capensis</i> —typical/wide leaf	<i>S. minor</i>
<i>D. capillaris</i>	<i>S. purpurea</i> subsp. <i>purpurea</i> —Pennsylvania, USA
<i>D. dielsiana</i>	USA
<i>D. intermedia</i>	<i>S. (flava × leucophylla) × ?</i>
<i>D. intermedia</i> —New Jersey, USA	<i>Utricularia multifida</i>
<i>D. intermedia</i> —Rhode Island, USA	<i>U. violacea</i>
<i>D. macrantha</i> subsp. <i>macrantha</i> —pink flower	

The seed bank is a members-only benefit. A complete, updated list (including other seeds in short supply) is online at the ICPS web site. It is ICPS policy not to distribute seed of plants protected by CITES Appendix I or the US Endangered Species Act.

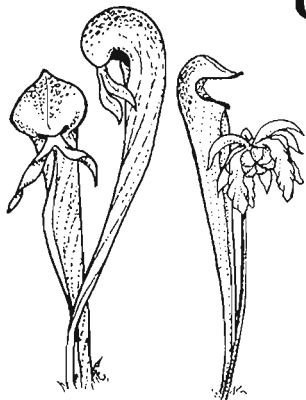
Seed packets are US\$1 each. Please include US\$2 postage and handling for each order. Non-USA members may send 2 International Reply Coupons for each packet and 2 IRCs for postage and handling. You may pay by check drawn on a USA Bank in US\$. Many members pay for orders with cash. Please make checks and money orders payable to "ICPS Seed Bank".

The quantity of seed available to each member is 1 packet of each variety per month. Larger quantities of selected varieties are available only to teachers for use in the classroom.

The money raised by the seed bank is used by the ICPS to pay for seed bank expenses, web site ISP charges, and ICPS educational and conservation programs. Donate seed and get credit for free seed from the seed bank.



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Front Cover: *Sarracenia alabamensis*. See article on page 43.

Back Cover: A mature plant of *Drosera neocaledonica* in the wild in southern New Caledonia. This plant is growing amongst pungent-pointed rushes on the edge of a creek. The stem is 100 mm tall. See article on page 37.

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